06/30/05

Healthy Water, Healthy People

Alignment with Maryland Voluntary State Curriculum Grades 6-8[i]

Activity	Page	Reading/English/ Language Arts	Social Studies	Science	Mathematics
HITTING THE MARK STUDENTS INVESTIGATE THE CONCEPTS OF ACCURACY AND PRECISION IN DATA COLLECTION, AND LEARN THE IMPORTANCE OF WRITING DETAILED PROCEDURES.	49	1.0 General Reading Processes: D. (a) Acquire new vocabulary.	None	1.0 Skills & Processes	5.0 Knowledge of Probability: A1 (identify a sample space); B1 (determine probability); C1 (analyze results).
Water Quality Windows STUDENTS EXPLORE THE DIFFERENT WATER QUALITY RANGES REQUIRED FOR THE SURVIVAL OF ORGANISMS BY INTERPRETING DATA; SORTING AND CLASSIFYING ORGANISMS ACCORDING TO THEIR REQUIREMENTS; AND APPLYING THEIR KNOWLEDGE TO DETERMINE THE EFFECTS OF CHANGES IN WATER QUALITY ON ORGANISMS.	164	1.0 General Reading Processes: D. (a) Acquire new vocabulary. 4.0 Writing: 2. (e) Use writing-to-learn strategies, (reflective) to make discoveries & connections; 7. Locate & use various sources - research). 6.0 Listening: 1 Gather information from listening; draw conclusions.	2.0 Geography: A. 1. (a) Distribution of natural resources; (b) Land use & natural resources; 4. How & why humans modify their natural environment.	1.0 Skills & Processes 3.0 Life Science: D. Evolution (adaptations); F. Ecology. 4.0 Chemistry: D. Physical & Chemical Changes. 6.0 Environmental Science [Strengthen alignment w/ a scenario describing human impacts (e.g., thermal pollution; acid rain).]	None
THERE IS NO POINT TO THIS POLLUTION STUDENTS ANALYZE DATA TO SOLVE A MYSTERY, INTERPRET A TOPOGRAPHICAL MAP, AND ANALYZE AND COMPARE WATER QUALITY DATA TO LEARN ABOUT THE CUMULATIVE IMPACTS OF NONPOINT SOURCE POLLUTION.	136	1.0 General Reading Processes: D. (a) Acquire new vocabulary. 2.0 Comprehension of Informational Text: A (research; historical documents; newspapers; science investigations). 4.0 Writing: 2 (a) Compose oral, written, and visual presentations. 6.0 Listening: 1 Gather info.; draw conclusions.	2.0 Geography: A. 1. (a) Distribution of natural resources; (b) Land use & natural resources; 4. How & why humans modify their natural environment. 3.0 Economics: 1. Scarcity of natural resources (a) Sustainable development; 6. Specialization of economic development (b) Natural resources influence on economic development; Public health issues.	1.0 Skills & Processes [Meets 4.0 Chemistry: D with water quality tests.] 6.0 Environmental Science	1.0 Algebra: C2. (a) Identify & describe the changes in graphs. 4.0 Knowledge of Statistics: A1. Organize & display data*; B1 Data analysis (interpret tables). 7.0 Processes of Math: B1. (justify ideas or solutions with math concepts.)

* Note: To meet 6-8 grade graphing standards, specific graphing skills need to include: stem-and-leaf; circle graphs; box-and-whisker; and/or scatter plots.

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A SNAPSHOT IN TIME STUDENTS USE A TOPOGRAPHIC MAP TO EXPLORE A WATERSHED AND THEN APPLY THAT KNOWLEDGE TO WATERSHED MONITORING. STUDENTS ANALYZE THE DIFFERENCES IN VALUE BETWEEN AN INDIVIDUAL DATA SET COLLECTED AT ONE PLACE AND TIME VERSUS A SERIES OF DATA SETS COLLECTED AT VARIOUS POINTS ALONG A WATERSHED OVER TIME. STUDENTS WILL FIRST GRAPH THEN ANALYZE, COMPARE AND SUMMARIZE TRENDS IN WATER QUALITY.	61	1.0 General Reading Processes: D. (a) Acquire new vocabulary. 4.0 Writing: 2. (e) Use writing-to-learn strategies, (reflective) to make discoveries & connections.	2.0 Geography: A. 1. (a) Distribution of natural resources; (b) Land use & natural resources; 4. How & why humans modify their natural environment.	1.0 Skills & Processes 3.0 Life Science: D. Evolution (environmental changes influence survival & adaptations); F. Ecology (interdependence; limiting factors). 4.0 Chemistry: C. States of Matter (relate water T. with dissolved oxygen). 6.0 Environmental Science	4.0 Knowledge of Statistics: A1. Organize & display data*; B1 Data analysis (interpret tables). 7.0 Processes of Math: B1. (justify ideas or solutions with math concepts.)
WATER QUALITY MONITORING FROM DESIGN TO DATA STUDENTS CREATE A STUDY DESIGN, THEN ANALYZE AND INTERPRET WATER QUALITY DATA TO MODEL THE PROCESS OF WATER QUALITY MONITORING.	70	1.0 General Reading Processes: D. (a) Acquire new vocabulary. 2.0 Comprehension of Informational Text: A1 (research; articles); A2 (graphs and tables). 4.0 Writing: 2 (a) Compose oral, written, and visual presentations.	2.0 Geography: A.1. (a) Distribution of natural resources; (b) Land use & natural resources; 4. How & why humans modify their natural environment.	1.0 Skills & Processes 3.0 Life Science: F. Ecology (interdependence; limiting factors). [Meets 4.0 Chemistry: D with water quality tests.] 6.0 Environmental Science	4.0 B1Data analysis (interpret tables).
WASH IT AWAY STUDENTS EXPLORE HOW DISEASES CAN BE TRANSMITTED EASILY WITHIN A POPULATION BY USING GLITTER TO REPRESENT COMMON PATHOGENS; AND THEN INVESTIGATE HAND-WASHING AS A METHOD OF DISEASE PREVENTION.	121	1.0 General Reading Processes: D. (a) Acquire new vocabulary. 4.0 Writing: 7. Locate, retrieve & use various information sources (research).	None.	3.0 Life Science: F. Ecology (b) Identify and describe factors that could limit populations within any environment (disease).	[None as activity is described. Opportunity exists to meet 6.0 Knowledge of Number Relationships & Computation C3. (compute ratio.]

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TURBIDITY OR NOT TURBIDITY: THAT IS THE QUESTION STUDENTS EXPLORE THE EFFECTS OF SEDIMENT ON TURBIDITY; COMPARE THE TURBIDITY OF MUDDY AND CLEAR WATER; SIMULATE ENVIRONMENTAL CONDITIONS THAT CAUSE EROSION; AND INVESTIGATE WAYS TO REDUCE EROSION THAT LEADS TO TURBIDITY IN ADJACENT WATERWAYS.	83	1.0 General Reading Processes: D. (a) Acquire new vocabulary. [Meets standard 4.0 Writing 7. Locate & use various information sources (research) when "extension" is conducted.]	None	2.0 Earth Science: A. Materials & processes that shape a planet (weathering & erosion). 3.0 Life Science: D. Evolution (adaptations); F. Ecology (limiting factors). [Meets 4.0 Chemistry: D with water quality tests.] 6.0 Environmental Science	[Meets standard 4.0 Knowledge of Statistics: A1. Organize & display data*; B1 Data analysis (interpret tables) when optional extension is conducted.]
BENTHIC BUGS AND BIO ASSESSMENT STUDENTS INVESTIGATE THE RELATIVE WATER QUALITY OF A STREAM BY CONDUCTING A SIMULATED BIOASSESMENT BY SAMPLYING AQUATIC MACROINVERTEBRATES (REPRESENTED BY ORDINARY MATERIALS).	154	1.0 General Reading Processes: D. (a) Acquire new vocabulary. 4.0 Writing: 2 (a) Compose oral, written, and visual presentations. [Meets standard 4.0 Writing 7. Locate, retrieve & use various information sources (research) when "extension" is conducted.]	None.	3.0 Life Science: D. Evolution (adaptations); F. Ecology (interdependence). 6.0 Environmental Science	4.0 Knowledge of Statistics: B1. Data Analysis. 6.0 Number Relationships & Computation: C1 (percentage; estimation.); C3. (compute ratios). 7.0 Processes of Math: B1. (justify ideas or solutions with math concepts.)
STONE SOUP STUDENTS WILL MODEL AND OBSERVE THE ACID NEUTRALIZATION CAPACITY OF ALKALINE WATERS, AND COMPARE IT WITH NON-ALKALINE WATERS.	35	1.0 General Reading Processes: D. (a) Acquire new vocabulary.	None	4.0 Chemistry: D. Physical & Chemical Changes. 2. Classify acids, bases using the pH scale; 3. Common substances have the ability to change into new substances. [Extension (adding heat) meets 4.0 Chemistry C. States of Matter.]	None

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LIFE AND DEATH SITUATION STUDENTS LEARN ABOUT THE DIVERSITY AND GLOBAL LOCATIONS OF WATERBORNE DISEASES AND THE ROLE OF EPIDEMIOLOGY IN DISEASE CONTROL BY SEARCHING FOR OTHERS WHO HAVE BEEN "INFECTED" WITH THE SAME WATERBORNE ILLNESS AS THEY HAVE. THEN, THEY CREATE NEWSPAPER ARTICLES THAT GIVE AN OVERVIEW OF THEIR DISEASE.	125	1.0 D. (a) Acquire new vocabulary. 4.0 2 (a) Compose oral, written, and visual presentations; (e) Use writing-to-learn strategies, (reflective) to make discoveries & connections; 7. Locate & use various information sources (research).	1.0 History: A (c) World-wide healthcare initiatives. 2.0 Geography: A. 4. Consequences when humans modify the natural environment. 3.0 Economics: 6 (b) Public health issues.	3.0 Life Science: F. Ecology (b) Identify and describe factors that could limit populations within any environment (disease). 6.0 Environmental Science	None.
LOOKS AREN'T EVERYTHING STUDENTS STUDY MAPS AND CLUES FROM HYPOTHETICAL CAMPING TRIP TO DETERMINE HOW AND WHY SOME OF THE CAMPERS BECAME ILL. THEY THEN INVESTIGATE THE ROLE OF WATER QUALITY IN HUMAN ILLNESS.	99	4.0 2 (a) Compose oral, written, and visual presentations. 6.0 1 Gather information from listening to the speaker; draw conclusions.	None.	6.0 Environmental Science [To strengthen alignment, this activity could include a Situation Card whereby some human-related impact contaminated the water.]	6.0 Number Relationships & Computation: C1 (sum; multiplication). 7.0 Processes of Math: B1. (justify ideas or solutions with math concepts.)

[i]Activities meet standards as noted. When a standard is listed without notation, the activity meets the standard fully.